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provide air under positive pressure to said air aspirated nozzle, a fuel supply to supply fuel at ambient pressure to said air aspirated nozzle, said fuel entering said nozzle under negative pressure created by said air entering said air aspirating nozzle under positive pressure, and a metering valve interposed between said fuel supply and said air aspirated nozzle, said metering valve being adjustable to increase or decrease the fuel supplied to said air aspirated nozzle from said fuel supply.

Amend claim 3 as follows:

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3. [Amended] An infrared burner as in claim 2 wherein said [regulator] metering valve is manually adjustable.

REMARKS

Claims 1 and 3 have been amended in today's paper. Claim 1 has been amended to explicitly recite that the air supplied to the air aspirated nozzle is under positive pressure and that the fuel is sucked into the air aspirated nozzle under negative pressure because of the venturi effect of the air entering the nozzle under positive pressure. Claim 3 has been amended to recite that the metering valve is manually adjustable rather than the regulator. This error was inadvertent and support for this amendment exists at page 19, lines 20-21 of the specification. Claims 1-8 remain in this application and stand for examination. Reconsideration and reexamination are requested in view of the amendments to the claims and the comments made hereinafter.

Applicant notes, with regret, that errors were inadvertently made in applicant's response dated June 23, 1999. First, the Examiner is referred to page 3 of the June 23 response at lines 14-15. Those two(2) lines should read:

--Daneshvar et al do not use air only under [at atmospheric] pressure as is the case with the present invention.--

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- 3 -

The second error is noted at page 3, lines 19-20 in relation to the Velie '188 reference. These lines should read:

--The fuel is provided under pressure and the air enters the atomising [air aspirated] nozzle [at atmospheric] under positive pressure.--

Rejection of claims 1-8 for obviousness

The Examiner rejects claims 1-8 for obviousness under 35 U.S.C. 103(a) over Daneshvar et al United States Patent 5,209,218 in view of Velie United States Patent 3,909,188.

The Examiner states that applicant argues the claims under consideration "...require that the compressor supplies air under pressure to the air aspirated nozzle and that fuel is supplied at ambient pressure to the nozzle...". Additionally, the Examiner states that applicant argues "...Velie '188 teaches the use of a pressurized fuel and air to the nozzle at atmospheric pressure."

With respect and with regard to the comments made above, applicant argues that the apparatus according to the present invention provides air under pressure to a nozzle and fuel supplied to the nozzle at atmospheric or ambient pressure which fuel is then subjected to the suction created by the air under positive pressure. The fuel is not supplied to the nozzle under positive pressure according to the present invention. Rather, the fuel is supplied to the nozzle at ambient pressure but it moves into the nozzle under the suction or negative pressure effect created by movement of the air under pressure into the nozzle which creates a venturi or suction effect on the fuel. See page 9, lines 12-16 of the specification. There is no compressor provided for the fuel in the present technology which is an important advantage. In the event the air compressor fails in the present burner, fuel flow into the burner will terminate immediately. Thus, the burner shuts down right away and no fires or explosions will occur. Nor will unplanned combustion

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- 4 -

continue.

In Velie '188, if the air compressor shuts down, and since the fuel is independently under pressure, the fuel will continue to flow to the combustion area through the nozzle. The fuel can therefore keep burning in a hazardous manner. Smoke, carbon and carbon monoxide can result from such burning and the Examiner will appreciate that such conditions could occur, for example, where the users of the burner were asleep or otherwise preoccupied and that injuries or death could inadvertently result.

The Examiner states that Velie '188 teaches air being "...delivered to the nozzle at 1-25 p.s.i. and [that] fuel [is supplied] at 1 to 4 p.s.i." and that claim 26 of Velie '188 requires "...primary air and fuel [to be delivered to the air-atomising nozzle] ...at a pressure of about 1 to 15 psi...". The Examiner further states that since average atmospheric pressure is 14.7 psi this is a clear teaching of use of an air supply under pressure and fuel at ambient pressure (being 14.7 psi).

Applicant appreciates the position of the Examiner in this regard. However and with respect, the pressures set out in Velie '188 are gage pressures; that is, they are the differences between the pressures applied to the air and fuel relative to atmospheric pressure. Thus, to be fair, the Examiner must add 14.7 psi to the pressures given in Velie '188 in order to fairly compare the invention of the present application with Velie '188. Thus, Velie '188 is teaching absolute air pressures of 15.7 to 39.7 psig and fuel pressures of 15.7 to 19.7 psig, all of which fall above atmospheric pressure of 14.7 psia (absolute). Thus, both the fuel and air in Velie '188 are clearly under pressure.

However and in view of this discussion, applicant has amended claim 1 to positively recite that the fuel according to the present invention enters the nozzle under the negative or suction pressure created by the venturi effect of the air entering the nozzle under positive pressure. This clearly

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- 5 -

distinguishes over Daneshvar et al and Velie '188 taken independently or in combination.

The Daneshvar et al reference is simply not relevant. Daneshvar et al use air and fuel, both being under pressure, after being mixed but their fuel is natural gas which has entirely different combustion characteristics from diesel or liquid fuel according to the present invention. Natural gas is inherently combustible when mixed with air as opposed to liquid fuel such as diesel fuel which must be atomised and mixed with air in specific amounts. So, Daneshvar et al contribute nothing to the Velie '188 patent.

In view of the above, it is believed that the claims are now in condition for allowance. Reconsideration and removal of the rejections and objections are requested and allowance of claims 1-8 is solicited.

Respectfully submitted,

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Per: _____

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